
Column #1 for *New Media* magazine.**Theodor Holm Nelson**

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Bio:

Ted Nelson is the founder of interactive media, who long ago coined the terms "hypertext" and "hypermedia." In 1960 he had a vision of a world of interactive computer screens, interactive media and open electronic publishing, where all may quote and link freely. Since that time he's been working to fulfill that dream of 1960-- a dream very different from where most people think the field is going. He consults and gives seminars on software design.

Reaching into the Water

The *world* is interactive, always has been. But the responses of the world were given by nature or simple materials. The interactive character of cat, dog and teetertotter came from their specific qualities, which I need not dwell on.

But the computer's interaction was born blank. The computer had no built-in reactions to the keyboard, was just a faithful follower of someone else's arbitrary plan. This meant it could interact any way at all, any way you programmed it to. Marshall McLuhan once informed me that computers were intrinsically linear, and gave me no chance to reply. He didn't get that they could branch, jump around and respond in any way at all.

A lot of people don't get it yet. In these realms of software and interactive media (unlike cats and teetertotters), *nothing is given*. It amuses me to hear people say, "Now, software has to be thus-and-

such a way," or "Computer media have to have such-and-such..." We just don't *know*. So little has been tried, even yet.

Interactivity seems so new. Yet the book was always interactive. Turning the page is an act of power, especially when you go to another section. (Such easy analogies, comparing interactive media to books and movies, can be very helpful. They are a place to turn when we get confused by Great Corporate Announcements and speeches about Any-Minute-Now.)

In the seventies people began to get ideas about interactive software, and now it surrounds us; in the nineties people are getting ideas about interactive media, and will they too surround us in a decade?

Hollywood and the computer world are now united in predicting a world of interactive media. Unanimously proclaiming a scattered variety of disparate visions, they all seem to think they know how it's going to work-- a world of interactive home disk players, interactive TV, interactive park rides, interactive 3D helmets; and hypermovies (of whoever's kind) will be tomorrow's great new productions.

So who is ready to make these productions? Most media people are not ready for interactivity, because most of the media they've worked with-- phonograph, movies, TV-- have not been interactive. So the notion of interactive media now both excites and confuses them. I once was planning out an interactive production with a well-known Hollywood producer. He asked how long it would run. When I said an interactive production had no running time, that it was up to the user, his jaw dropped. "*No running time!*" he exclaimed in shock and disbelief.

So in a way the computer people have a conceptual head start over the media folk: they understand the arbitrariness and the timelessness, which they are used to from designing interactive

software. Interactive software and interactive media are both totally arbitrary (you can go any whichway), both fraught with possibility, both hardly tried yet.

But media are about *ideas*, and unfortunately computer people have done rather badly in the realm of ideas. No matter what anybody does, computers get more complex and incomprehensible, the ideas get more tangled. And computer people have tended to think of designing interactivity as "interface," just the finishing cosmetics. So they usually haven't understood the problems of interactivity design at all. The problem is not just interface, it's the *whole conceptual structure within*, and what it means to the user.

People think interactive systems are "technology," which is utterly to miss the point. These matters are not technical. Interactive systems (whether for pleasure or business) are a new art form. The problem is reaching the mind and heart of the viewer.

You don't think that functional programs, like spreadsheet, are emotional? Then *what do you think makes people return them to the store?* (One of my favorite methods for consulting on semi-finished software is to make the designer sit silently while I try to use the program. Now *there's* an emotional experience. All around. And it has tended to result in serious design changes.)

So here's the heart of it, the art of it: *all interactive software design is a branch of movie-making.*

What is a movie? Events on a screen that reach the mind and heart of the viewer. What is interactive software? Events on a screen that reach the mind and heart of the viewer, *plus interaction*. So all the techniques of movies are a part of the palette. (Whereas none of the technicalities of computer science are, really. The user does not see control structures, caching, AI stuff. These things don't show on the screen, any more than what movie camera was used.)

Software, like other movies, is about *conceptual structure and feel*. The exact physical techniques by which the movie is made, or the software is made to work, are of little concern.

What is the conceptual structure of a movie? The script. What is the conceptual structure of software? Why, whatever the software seems to be about.

Now, movie-makers understand conceptual structure and how to get it across. How to lead you, orient you, confuse you precisely, surprise you, make it all clear again. Whereas computer people (all too many of them) seem to know only about confusing and surprising you. I wish this were not so. The temptation is too great: *There is no limit on the complexity of software*.

What is the feel of the movie? The feel of the movie is its perceptible qualities and rightness-- the atmosphere, the sense of being there, the detailing. What is the feel of software? The quality and rightness of it all, likewise in the detailing; whether the controls do what you expect and feel right, the smoothness of scrolling, what bumps and disappoints. In most software the feel is way out of control, you're just lucky the stuff works at all. (I am sitting at Microsoft Word, an exception, whose outliner performs almost acceptably-- it scrolls fast and smoothly, and the controls halfway make sense. I stay in the outliner almost all the time.)

Movie-makers understand about feel in general, but computer guys don't. Computer guys understand the feel of sports cars, but not of software, because they're so wrapped up in the concepts that they don't feel the confusion at their fingertips or see it on the screen.

Clutter springs up like weeds, whether in software or interactive media. The user has to study hard just to get around the system. If icons are good, more icons must be better, right? All too soon the icons fill half the screen-- the Frying Pan, the Bird's Nest, the

High-Button Shoe, cluttered concepts that make sense only to the designer.

But deeper than visual clutter is the confusion you can't see-- incomprehensible labyrinths with no clear arrangement, like Lotus menus or bad Hypercard stacks, dungeon games foisted on those of us who don't like them. (The one-way buttons of HyperCard are intrinsically disastrous. Every blind, one-way button is a trapdoor to nowhere.) And the excitement of jumping on links distracts us from the fact that often it is not much more than the turning of pages, which is okay, but hardly to be glorified.

The truly fine interactive design is unobtrusive and clear. My favorite interactive system is a *globe*. A globe is not "friendly." A globe does not say "good morning, we're going to have fun today, what's your name?" It just sits there, and you simply turn it and move closer or farther away. You are not conscious of any interface.

This is exactly how it should be. I stress this because it is the kind of simplicity the designer has to keep it in mind all the time.

The truly fine interactive design is learned almost instantly. I believe such designs are possible in every area. Using interactive software and interactive media should be like reaching into a pool of water-- the light refracts, makes your hand look a little bent, but the interface is totally clear, and you see what you're reaching toward.

Now, video game designers know clarity. They have perhaps two quarters to snag a customer. Pac-Man is learned almost instantly. Pac-Man is a truly fine design. But most software designers have a license to befuddle; and most of the interactive media are still styled in the fuddling, Xerox PARC, office-window designs of the seventies, and require big manuals. I say their license to befuddle has expired.

Everyone thinks they know all about the new media. But I'm betting on the movie-makers, at least some of them. When the waters clear, the new media will be more like movies than we thought. But deeper, and with a refractive surface that feels very special as you reach in.